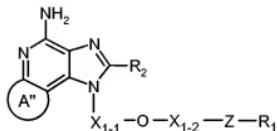


Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (canceled)
2. (original) A compound of the Formula Ia:



Ia

wherein:

X₁₋₁ and X₁₋₂ are independently selected from the group consisting of C₁₋₁₀ alkylene, C₄₋₁₀ alkenylene, and C₄₋₁₀ alkynylene; wherein the terminal carbon atoms of alkenylene and alkynylene are tetrahedral;

Z is selected from the group consisting of -S-, -S(O)-, and -S(O)₂-;

R₁ is selected from the group consisting of:

- C₁₋₁₀ alkyl,
- C₂₋₁₀ alkenyl,
- C₂₋₁₀ alkynyl,
- aryl,
- aryl-C₁₋₁₀ alkenyl,
- aryloxy-C₁₋₁₀ alkenyl,
- C₁₋₁₀ alkylarylenyl,
- heteroaryl,
- heteroaryl-C₁₋₁₀ alkenyl,
- heteroaryloxy-C₁₋₁₀ alkenyl,
- C₁₋₁₀ alkylheteroarylenyl,
- heterocyclyl,
- heterocyclyl-C₁₋₁₀ alkenyl, and

C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl, C₂₋₁₀ alkynyl, aryl, aryl-C₁₋₁₀ alkyl, aryl-C₁₋₁₀ alkenyl, aryl-C₁₋₁₀ alkynyl, C₁₋₁₀ alkylarylenyl, heteroaryl, heteroaryl-C₁₋₁₀ alkyl, heteroaryl-C₁₋₁₀ alkenyl, heteroaryl-C₁₋₁₀ alkynyl, heteroaryloxy-C₁₋₁₀ alkyl, heteroaryloxy-C₁₋₁₀ alkenyl, heteroaryloxy-C₁₋₁₀ alkynyl, C₁₋₁₀ alkylheteroarylenyl, heterocyclyl, and heterocyclyl-C₁₋₁₀ alkyl, substituted by one or more substituents independently selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, hydroxy-C₁₋₁₀ alkyl, halo-C₁₋₁₀ alkyl, halo-C₁₋₁₀ alkoxy, halogen, nitro, hydroxy, cyano, aryl, aryloxy, heteroaryl, heteroaryloxy, heterocyclyl, amino, C₁₋₁₀ alkylamino, di(C₁₋₁₀ alkyl)amino, and in the case of C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl, C₂₋₁₀ alkynyl, and heterocyclyl, oxo; wherein heteroaryl, C₁₋₁₀ alkylheteroarylenyl, and heterocyclyl are attached to Z through a carbon atom;

A" is a fused aryl ring or heteroaryl ring containing one heteroatom selected from the group consisting of N and S, wherein the aryl or heteroaryl ring is unsubstituted or substituted by one or more R groups, or a fused 5 to 7 membered saturated ring, optionally containing one heteroatom selected from the group consisting of N and S, and unsubstituted or substituted by one or more R_A groups;

each R is independently selected from the group consisting of alkyl, alkoxy, hydroxy, fluoro, and trifluoromethyl;

each R_A is independently selected from the group consisting of halogen, hydroxy, alkyl, alkenyl, haloalkyl, alkoxy, alkylthio, and -N(R₉)₂;

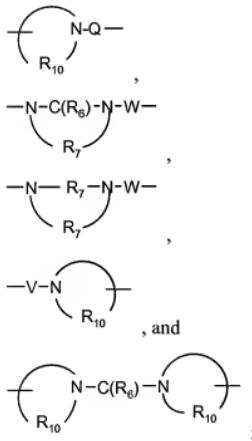
R₂ is selected from the group consisting of

- R₄,
- X-R₄,
- X-Y-R₄, and
- X-R₅;

X is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, heteroarylene, and heterocyclene wherein the alkylene, alkenylene, and alkynylene groups can be optionally interrupted or terminated with arylene, heteroarylene, or heterocyclene, and optionally interrupted by one or more -O- groups;

Y is selected from the group consisting of:

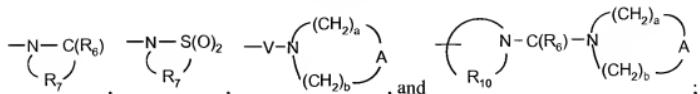
$-O-$,
 $-S(O)_{0-2-}$,
 $-S(O)_2-N(R_8)-$,
 $-C(R_6)-$,
 $-C(R_6)-O-$,
 $-O-C(R_6)-$,
 $-O-C(O)-O-$,
 $-N(R_8)-Q-$,
 $-C(R_6)-N(R_8)-$,
 $-O-C(R_6)-N(R_8)-$,
 $-C(R_6)-N(OR_9)-$,



R_4 is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroaryl, and heterocyclyl wherein the alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroaryl, and heterocyclyl groups can be unsubstituted or substituted by one or more substituents independently selected from the group consisting of alkyl, alkoxy, hydroxyalkyl, haloalkyl, haloalkoxy, halogen, nitro, hydroxy, mercapto, cyano,

aryl, aryloxy, arylalkyleneoxy, heteroaryl, heteroaryloxy, heteroarylalkyleneoxy, heterocyclyl, amino, alkylamino, dialkylamino, (dialkylamino)alkyleneoxy, and in the case of alkyl, alkenyl, alkyanyl, and heterocyclyl, oxo;

R₅ is selected from the group consisting of:



R₆ is selected from the group consisting of =O and =S;

R₇ is C₂₋₇ alkylene;

R₈ is selected from the group consisting of hydrogen, alkyl, alkoxyalkylene, and arylalkylene;

R₉ is selected from the group consisting of hydrogen and alkyl;

R₁₀ is C₃₋₈ alkylene;

A is selected from the group consisting of -O-, -C(O)-, -S(O)₀₋₂-, -CH₂-, and -N(R₉)-;

Q is selected from the group consisting of a bond, -C(R₆)-, -C(R₆)-C(R₆)-, -S(O)₂-, -C(R₆)-N(R₈)-W-, -S(O)₂-N(R₈)-, -C(R₆)-O-, and -C(R₆)-N(OR₉)-;

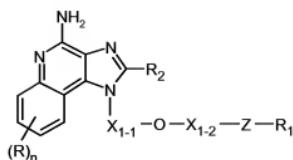
V is selected from the group consisting of -C(R₆)-, -O-C(R₆)-, -N(R₈)-C(R₆)-, and -S(O)₂-;

W is selected from the group consisting of a bond, -C(O)-, and -S(O)₂-, and

a and b are independently integers from 1 to 6 with the proviso that a + b is ≤ 7 ; or a pharmaceutically acceptable salt thereof.

3. (canceled)

4. (original) A compound of the Formula IIa:



IIa

wherein:

X₁₋₁ and X₁₋₂ are independently selected from the group consisting of C₁₋₁₀ alkylene, C₄₋₁₀ alkenylene, and C₄₋₁₀ alkynylene; wherein the terminal carbon atoms of alkenylene and alkynylene are tetrahedral;

Z is selected from the group consisting of -S-, -S(O)-, and -S(O)₂-;

R₁ is selected from the group consisting of:

C₁₋₁₀ alkyl,
C₂₋₁₀ alkenyl,
C₂₋₁₀ alkynyl,
aryl,
aryl-C₁₋₁₀ alkenylenyl,
aryloxy-C₁₋₁₀ alkenylenyl,
C₁₋₁₀ alkylarylenyl,
heteroaryl,
heteroaryl-C₁₋₁₀ alkenylenyl,
heteroaryloxy-C₁₋₁₀ alkenylenyl,
C₁₋₁₀ alkylheteroarylenyl,
heterocyclyl,
heterocyclyl-C₁₋₁₀ alkenylenyl, and
C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl, C₂₋₁₀ alkynyl, aryl, aryl-C₁₋₁₀ alkenylenyl,
aryloxy-C₁₋₁₀ alkenylenyl, C₁₋₁₀ alkylarylenyl, heteroaryl,
heteroaryl-C₁₋₁₀ alkenylenyl, heteroaryloxy-C₁₋₁₀ alkenylenyl,
C₁₋₁₀ alkylheteroarylenyl, heterocyclyl, and heterocyclyl-C₁₋₁₀ alkenylenyl
substituted by one or more substituents independently selected from the group
consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, hydroxy-C₁₋₁₀ alkyl,
halo-C₁₋₁₀ alkyl, halo-C₁₋₁₀ alkoxy, halogen, nitro, hydroxy, cyano, aryl, aryloxy,
heteroaryl, heteroaryloxy, heterocyclyl, amino,
C₁₋₁₀ alkylamino, di(C₁₋₁₀ alkyl)amino, and in the case of C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl,
C₂₋₁₀ alkynyl, and heterocyclyl, oxo; wherein heteroaryl,
C₁₋₁₀ alkylheteroarylenyl, and heterocyclyl are attached to Z through a carbon
atom;

R is selected from the group consisting of alkyl, alkoxy, hydroxy, fluoro, and trifluoromethyl;

n is 0 to 4;

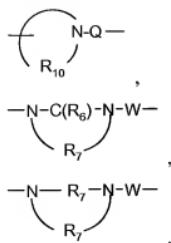
R₂ is selected from the group consisting of

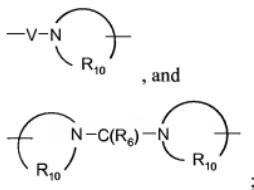
- R₄,
- X-R₄,
- X-Y-R₄, and
- X-R₅;

X is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, heteroarylene, and heterocyclylene wherein the alkylene, alkenylene, and alkynylene groups can be optionally interrupted or terminated with arylene, heteroarylene, or heterocyclylene, and optionally interrupted by one or more -O- groups;

Y is selected from the group consisting of:

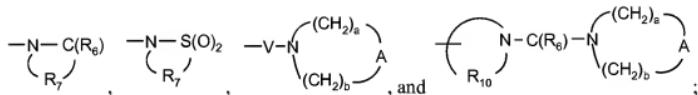
- O-,
- S(O)₀₋₂₋,
- S(O)₂-N(R₈)-,
- C(R₆)-,
- C(R₆)-O-,
- O-C(R₆)-,
- O-C(O)-O-,
- N(R₈)-Q-,
- C(R₆)-N(R₈)-,
- O-C(R₆)-N(R₈)-,
- C(R₆)-N(OR₉)-,





R₄ is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroarylenyl, and heterocyclyl wherein the alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroarylenyl, and heterocyclyl groups can be unsubstituted or substituted by one or more substituents independently selected from the group consisting of alkyl, alkoxy, hydroxyalkyl, haloalkyl, haloalkoxy, halogen, nitro, hydroxy, mercapto, cyano, aryl, aryloxy, arylalkyleneoxy, heteroaryl, heteroaryloxy, heteroarylalkyleneoxy, heterocyclyl, amino, alkylamino, dialkylamino, (dialkylamino)alkyleneoxy, and in the case of alkyl, alkenyl, alkynyl, and heterocyclyl, oxo;

R₅ is selected from the group consisting of:



R₆ is selected from the group consisting of =O and =S;

R₇ is C₂₋₇ alkylene;

R₈ is selected from the group consisting of hydrogen, alkyl, aryloxyalkylenyl, and arylalkylenyl;

R₉ is selected from the group consisting of hydrogen and alkyl;

R₁₀ is C₃₋₈ alkylene;

A is selected from the group consisting of -O-, -C(O)-, -S(O)₀₋₂₋, -CH₂₋, and -N(R₄)-;

Q is selected from the group consisting of a bond, -C(R₆)-, -C(R₆)-C(R₆)-, -S(O)₂-, -C(R₆)-N(R₈)-W-, -S(O)₂-N(R₈)-, -C(R₆)-O-, and -C(R₆)-N(OR₉)-;

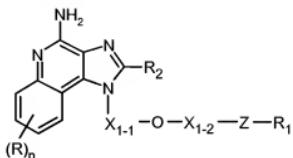
V is selected from the group consisting of -C(R₆)-, -O-C(R₆)-,

-N(R₈)-C(R₆)-, and -S(O)₂-;

W is selected from the group consisting of a bond, $-\text{C}(\text{O})-$, and $-\text{S}(\text{O})_2-$; and

a and b are independently integers from 1 to 6 with the proviso that $a + b \leq 7$;
or a pharmaceutically acceptable salt thereof.

5. (original) A compound of the Formula IIa:



IIIa

wherein:

X_{1-1} and X_{1-2} are independently selected from the group consisting of C₁₋₁₀ alkylene, C₄₋₁₀ alkenylene, and C₄₋₁₀ alkynylene; wherein the terminal carbon atoms of alkenylene and alkynylene are tetrahedral;

Z is selected from the group consisting of $-S-$, $-S(O)-$, and $-S(O)_2-$.

R_1 is selected from the group consisting of:

C₁₋₁₀ alkyl-

C₂-10 alkenyl

C₂-10 alkynyl

any

aryl-C₁–C₁₀ alkyl[enyl]

aryloxy-C₁ to alkylene

C₁ to alkylarylenyl

heteroaryl

heteroaryl-*t*

heteroanhydride $C = \text{allyliden}$

C. 2-allyl heterocyclic compounds

heterocyclic

MARCH 1941

heterocyclic- α -alkenyl, and

R is selected from the group consisting of alkyl, alkoxy, hydroxy, fluoro, and trifluoromethyl;

n is 0 to 4;

R_2 is selected from the group consisting of

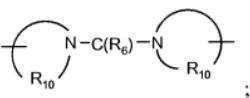
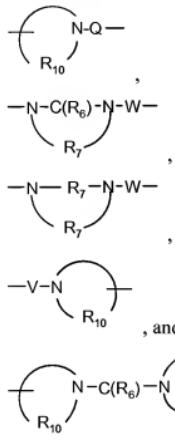
-R₄,
 -X-R₄,
 -X-Y-R₄, and
 -X-R₅;

X is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, heteroarylene, and heterocyclene wherein the alkylene, alkenylene, and alkynylene groups can be optionally interrupted or terminated with arylene, heteroarylene, or heterocyclene, and optionally interrupted by one or more -O- groups;

Y is selected from the group consisting of:

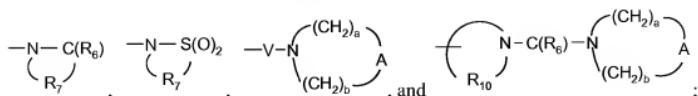
- S(O)₀₋₂₋,
- S(O)₂-N(R₈)
- C(R₆)-,
- C(R₆)-O-,
- O-C(R₆)-,
- O-C(O)-O-,

$-\text{N}(\text{R}_8)\text{-Q-}$,
 $-\text{C}(\text{R}_6)\text{-N}(\text{R}_8)\text{-}$,
 $-\text{O-C}(\text{R}_6)\text{-N}(\text{R}_8)\text{-}$,
 $-\text{C}(\text{R}_6)\text{-N}(\text{OR}_9)\text{-}$,



R_4 is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroaryl, and heterocycl wherein the alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroaryl, and heterocycl groups can be unsubstituted or substituted by one or more substituents independently selected from the group consisting of alkyl, alkoxy, hydroxyalkyl, haloalkyl, haloalkoxy, halogen, nitro, hydroxy, mercapto, cyano, aryl, aryloxy, arylalkyleneoxy, heteroaryl, heteroaryloxy, heteroarylalkyleneoxy, heterocycl, amino, alkylamino, dialkylamino, (dialkylamino)alkyleneoxy, and in the case of alkyl, alkenyl, alkynyl, and heterocycl, oxo;

R_5 is selected from the group consisting of:



R₆ is selected from the group consisting of =O and =S;

R₇ is C₂₋₇ alkylene;

R₈ is selected from the group consisting of hydrogen, alkyl, alkoxyalkylenyl, and arylalkylenyl;

R₉ is selected from the group consisting of hydrogen and alkyl;

R₁₀ is C₃₋₈ alkylene;

A is selected from the group consisting of -O-, -C(O)-, -S(O)₀₋₂₋, -CH₂₋, and -N(R₄);

Q is selected from the group consisting of a bond, -C(R₆)-, -C(R₆)-C(R₆)-, -S(O)₂₋, -C(R₆)-N(R₈)-W-, -S(O)₂₋N(R₈)-, -C(R₆)-O-, and -C(R₆)-N(OR₉)-;

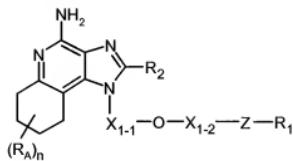
V is selected from the group consisting of -C(R₆)-, -O-C(R₆)-, -N(R₈)-C(R₆)-, and -S(O)₂₋;

W is selected from the group consisting of a bond, -C(O)-, and -S(O)₂₋; and

a and b are independently integers from 1 to 6 with the proviso that a + b is \leq 7; or a pharmaceutically acceptable salt thereof.

6. (canceled)

7. (original) A compound of the formula IIIa:



IIIa

wherein:

X₁₋₁ and X₁₋₂ are independently selected from the group consisting of C₁₋₁₀ alkylene, C₄₋₁₀ alkenylene, and C₄₋₁₀ alkynylene; wherein the terminal carbon atoms of alkenylene and alkynylene are tetrahedral;

Z is selected from the group consisting of -S-, -S(O)-, and -S(O)₂₋;

R₁ is selected from the group consisting of:

C₁₋₁₀ alkyl,
C₂₋₁₀ alkenyl,
C₂₋₁₀ alkynyl,
aryl,
aryl-C₁₋₁₀ alkyl enyl,
aryloxy-C₁₋₁₀ alkyl enyl,
C₁₋₁₀ alkylarylenyl,
heteroaryl,
heteroaryl-C₁₋₁₀ alkyl enyl,
heteroaryloxy-C₁₋₁₀ alkyl enyl,
C₁₋₁₀ alkylheteroarylenyl,
heterocyclyl,
heterocyclyl-C₁₋₁₀ alkyl enyl, and
C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl, C₂₋₁₀ alkynyl, aryl, aryl-C₁₋₁₀ alkyl enyl,
aryloxy-C₁₋₁₀ alkyl enyl, C₁₋₁₀ alkylarylenyl, heteroaryl,
heteroaryl-C₁₋₁₀ alkyl enyl, heteroaryloxy-C₁₋₁₀ alkyl enyl,
C₁₋₁₀ alkylheteroarylenyl, heterocyclyl, and heterocyclyl-C₁₋₁₀ alkyl enyl
substituted by one or more substituents independently selected from the group
consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, hydroxy-C₁₋₁₀ alkyl,
halo-C₁₋₁₀ alkyl, halo-C₁₋₁₀ alkoxy, halogen, nitro, hydroxy, cyano, aryl, aryloxy,
heteroaryl, heteroaryloxy, heterocyclyl, amino,
C₁₋₁₀ alkylamino, di(C₁₋₁₀ alkyl)amino, and in the case of C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl,
C₂₋₁₀ alkynyl, and heterocyclyl, oxo; wherein heteroaryl,
C₁₋₁₀ alkylheteroarylenyl, and heterocyclyl are attached to Z through a carbon
atom;

R_A is selected from the group consisting of:

halogen,
hydroxy,
alkyl,
alkenyl,
haloalkyl,

alkoxy,
alkylthio, and
-N(R₉)₂;

n is 0 to 4;

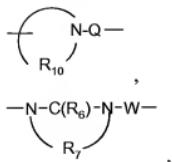
R₂ is selected from the group consisting of

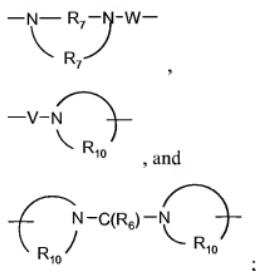
-R₄,
-X-R₄,
-X-Y-R₄, and
-X-R₅;

X is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, heteroarylene, and heterocyclylene wherein the alkylene, alkenylene, and alkynylene groups can be optionally interrupted or terminated with arylene, heteroarylene, or heterocyclylene, and optionally interrupted by one or more -O- groups;

Y is selected from the group consisting of:

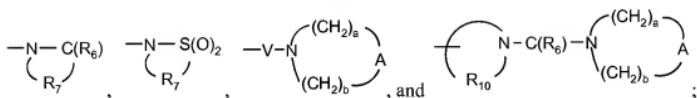
-O-,
-S(O)₀₋₂₋,
-S(O)₂-N(R₈)-,
-C(R₆)-,
-C(R₆)-O-,
-O-C(R₆)-,
-O-C(O)-O-,
-N(R₈)-Q-,
-C(R₆)-N(R₈)-,
-O-C(R₆)-N(R₈)-,
-C(R₆)-N(OR₉)-,





R_4 is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroarylenyl, and heterocyclyl wherein the alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroarylenyl, and heterocyclyl groups can be unsubstituted or substituted by one or more substituents independently selected from the group consisting of alkyl, alkoxy, hydroxylalkyl, haloalkyl, haloalkoxy, halogen, nitro, hydroxy, mercapto, cyano, aryl, aryloxy, arylalkyleneoxy, heteroaryl, heteroaryloxy, heteroarylalkyleneoxy, heterocyclyl, amino, alkylamino, dialkylamino, (dialkylamino)alkyleneoxy, and in the case of alkyl, alkenyl, alkynyl, and heterocyclyl, oxo;

R_5 is selected from the group consisting of:



R_6 is selected from the group consisting of =O and =S;

R₇ is C₂₋₇ alkylene;

R_8 is selected from the group consisting of hydrogen, alkyl, alkoxyalkylenyl, and arylalkylenyl;

R_9 is selected from the group consisting of hydrogen and alkyl;

R₁₀ is C₃₋₈ alkylene;

A is selected from the group consisting of $-O-$, $-C(O)-$, $-S(O)_{0.2-}$, $-CH_2-$, and $-N(R_1)-$:

O is selected from the group consisting of a bond, $-\text{C}(\text{R}_6)-$, $-\text{C}(\text{R}_6)-\text{C}(\text{R}_6)-$,

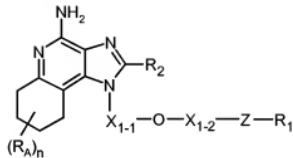
-S(O)₂-, -C(R₆)-N(R₈)-W-, -S(O)₂-N(R₈)-, -C(R₆)-O-, and -C(R₆)-N(OR₉)-;

V is selected from the group consisting of -C(R₆)-, -O-C(R₆)-, -N(R₈)-C(R₆)-, and -S(O)₂-;

W is selected from the group consisting of a bond, -C(O)-, and -S(O)₂-; and

a and b are independently integers from 1 to 6 with the proviso that a + b is ≤ 7 ;
or a pharmaceutically acceptable salt thereof.

8. (original) A compound of the Formula IIIa:



IIIa

wherein:

X_{1,1} and X_{1,2} are independently selected from the group consisting of C₁₋₁₀ alkylene, C₄₋₁₀ alkenylene, and C₄₋₁₀ alkynylene; wherein the terminal carbon atoms of alkenylene and alkynylene are tetrahedral;

Z is selected from the group consisting of -S-, -S(O)-, and -S(O)₂-;

R₁ is selected from the group consisting of:

C₁₋₁₀ alkyl,

C₂₋₁₀ alkenyl,

C₂₋₁₀ alkynyl,

aryl,

aryl-C₁₋₁₀ alkenyl,

aryloxy-C₁₋₁₀ alkenyl,

C₁₋₁₀ alkylarylenyl,

heteroaryl,

heteroaryl-C₁₋₁₀ alkenyl,

heteroaryloxy-C₁₋₁₀ alkenyl,

C₁₋₁₀ alkylheteroarylenyl,

R_A is selected from the group consisting of:

halogen,
hydroxy,
alkyl,
alkenyl,
haloalkyl,
alkoxy,
alkylthio, and
-N(R₉)₂;

n is 0 to 4;

R_2 is selected from the group consisting of

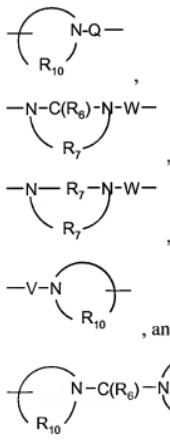
-R₄,
-X-R₄,
-X-Y-R₄, and
-X-R₅:

X is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, heteroarylene, and heterocyclylene wherein the alkylene, alkenylene, and alkynylene groups can

be optionally interrupted or terminated with arylene, heteroarylene, or heterocyclylene, and optionally interrupted by one or more -O- groups;

Y is selected from the group consisting of:

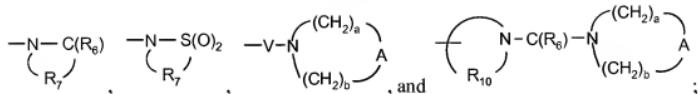
- S(O)₀₋₂₋,
- S(O)₂-N(R₈)-,
- C(R₆)-,
- C(R₆)-O-,
- O-C(R₆)-,
- O-C(O)-O-,
- N(R₈)-Q-,
- C(R₆)-N(R₈)-,
- O-C(R₆)-N(R₈)-,
- C(R₆)-N(OR₉)-,



R₄ is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroaryl, and heterocyclyl wherein the alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroaryl, and heterocyclyl groups can be unsubstituted or

substituted by one or more substituents independently selected from the group consisting of alkyl, alkoxy, hydroxyalkyl, haloalkyl, haloalkoxy, halogen, nitro, hydroxy, mercapto, cyano, aryl, aryloxy, arylalkyleneoxy, heteroaryl, heteroaryloxy, heteroarylalkyleneoxy, heterocyclyl, amino, alkylamino, dialkylamino, (dialkylamino)alkyleneoxy, and in the case of alkyl, alkenyl, alkynyl, and heterocyclyl, oxo;

R_5 is selected from the group consisting of:



R_6 is selected from the group consisting of =O and =S;

R₇ is C₂₋₇ alkylene;

R_8 is selected from the group consisting of hydrogen, alkyl, alkoxyalkylenyl, and arylalkylenyl;

R₉ is selected from the group consisting of hydrogen and alkyl;

R₁₀ is C₃₋₈ alkylene;

A is selected from the group consisting of -O-, -C(O)-, -S(O)₀₋₂₋, -CH₂-, and -N(R₄)-;

Q is selected from the group consisting of a bond, $-\text{C}(\text{R}_6)-$, $-\text{C}(\text{R}_6)\text{-C}(\text{R}_6)\text{-}$, $-\text{S}(\text{O})_2-$, $-\text{C}(\text{R}_6)\text{-N}(\text{R}_8)\text{-W}_1$, $-\text{S}(\text{O})_2\text{-N}(\text{R}_8)\text{-}$, $-\text{C}(\text{R}_6)\text{-O}-$, and $-\text{C}(\text{R}_6)\text{-N}(\text{OR}_9)\text{-}$;

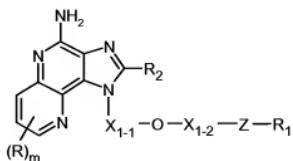
V is selected from the group consisting of $-C(R_6)-$, $-O-C(R_6)-$, $-N(R_8)-C(R_6)-$, and $-S(O)-$;

W is selected from the group consisting of a bond, $-\text{C}(\text{O})-$, and $-\text{S}(\text{O})_2-$; and

a and b are independently integers from 1 to 6 with the proviso that a + b is ≤ 7 ;
or a pharmaceutically acceptable salt thereof.

9. (canceled)

10. (original) A compound of the Formula IVa:



IVa

wherein:

X_{1-1} and X_{1-2} are independently selected from the group consisting of C_{1-10} alkylene, C_{4-10} alkenylene, and C_{4-10} alkynylene; wherein the terminal carbon atoms of alkenylene and alkynylene are tetrahedral;

Z is selected from the group consisting of -S-, -S(O)-, and -S(O)₂-;

R_1 is selected from the group consisting of:

C₁₋₁₀ alkyl,

C₂-10 alkenyl.

C₂-10 alkynyl-

any

aryl-C₁₋₁₀ alkyl[enyl],

aryloxy-C₁₋₁₀ alkylene.

C₁₋₁₀ alkylarylenyl-

heteroaryl-

heteroaryl-*t*

heteroaryloxy-C₁₋₁₂ alkyls

C₁-C₆-alkylheteroarylidenyl

heteroacylul

heterocyclics

Scallop, Scallop and Scallop

1. $\mathbf{G}_{\text{all},1} \rightarrow \mathbf{G}_{\text{all},2} \rightarrow \mathbf{G}_{\text{all},3} \rightarrow \mathbf{G}_{\text{all},4}$

alkoxy, C₁-10 alkylenyl, C₁-10 alkylarylenyl, heteroaryl,

heteroaryl-C₁-C₁₀ alkyl enyl, heteroaryloxy-C₁-C₁₀ alkyl enyl,

C₁₋₁₀ alkyl(heteroaryl)enyl, heterocyclyl, and heterocyclyl-C₁₋₁₀ alkylene

substituted by one or more substituents independently selected from the group consisting of C₁₋₁₀ alkyl, C₁₋₁₀ alkoxy, hydroxy-C₁₋₁₀ alkyl,

halo-C₁₋₁₀ alkyl, halo-C₁₋₁₀ alkoxy, halogen, nitro, hydroxy, cyano, aryl, aryloxy, heteroaryl, heteroaryloxy, heterocycl, amino, C₁₋₁₀ alkylamino, di(C₁₋₁₀ alkyl)amino, and in the case of C₁₋₁₀ alkyl, C₂₋₁₀ alkenyl, C₂₋₁₀ alkynyl, and heterocycl, oxo; wherein heteroaryl, C₁₋₁₀ alkylheteroarylenyl, and heterocycl are attached to Z through a carbon atom;

R is selected from the group consisting of alkyl, alkoxy, hydroxy, fluoro, and trifluoromethyl;

m is 0 to 3;

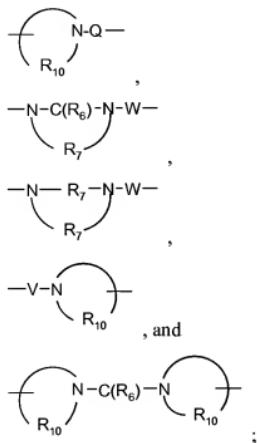
R₂ is selected from the group consisting of

- R₄,
- X-R₄,
- X-Y-R₄, and
- X-R₅;

X is selected from the group consisting of alkylene, alkenylene, alkynylene, arylene, heteroarylene, and heterocyclene wherein the alkylene, alkenylene, and alkynylene groups can be optionally interrupted or terminated with arylene, heteroarylene, or heterocyclene, and optionally interrupted by one or more -O- groups;

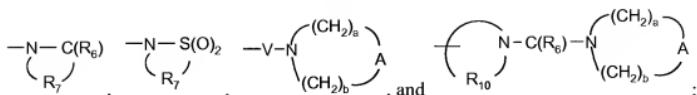
Y is selected from the group consisting of:

- O-,
- S(O)₀₋₂-,
- S(O)₂-N(R₈)-,
- C(R₆)-,
- C(R₆)-O-,
- O-C(R₆)-,
- O-C(O)-O-,
- N(R₈)-Q-,
- C(R₆)-N(R₈)-,
- O-C(R₆)-N(R₈)-,
- C(R₆)-N(OR₉)-,



R_4 is selected from the group consisting of hydrogen, alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroarylalkylenyl, and heterocyclyl wherein the alkyl, alkenyl, alkynyl, aryl, arylalkylenyl, aryloxyalkylenyl, alkylarylenyl, heteroaryl, heteroarylalkylenyl, heteroaryloxyalkylenyl, alkylheteroarylalkylenyl, and heterocyclyl groups can be unsubstituted or substituted by one or more substituents independently selected from the group consisting of alkyl, alkoxy, hydroxyalkyl, haloalkyl, haloalkoxy, halogen, nitro, hydroxy, mercapto, cyano, aryl, aryloxy, arylalkyleneoxy, heteroaryl, heteroaryloxy, heteroarylalkyleneoxy, heterocyclyl, amino, alkylamino, dialkylamino, (dialkylamino)alkyleneoxy, and in the case of alkyl, alkenyl, alkynyl, and heterocyclyl, oxo;

R_5 is selected from the group consisting of:



R_6 is selected from the group consisting of =O and =S;

R_7 is C_{2-7} alkylene;

R_8 is selected from the group consisting of hydrogen, alkyl, aryloxyalkylenyl, and arylalkylenyl;

R₉ is selected from the group consisting of hydrogen and alkyl;

R₁₀ is C₃₋₈ alkylene;

A is selected from the group consisting of -O-, -C(O)-, -S(O)₀₋₂-, -CH₂-, and -N(R₄);

Q is selected from the group consisting of a bond, -C(R₆)-, -C(R₆)-C(R₆)-, -S(O)₂-, -C(R₆)-N(R₈)-W-, -S(O)₂-N(R₈)-, -C(R₆)-O-, and -C(R₆)-N(OR₉);

V is selected from the group consisting of -C(R₆)-, -O-C(R₆)-, -N(R₈)-C(R₆)-, and -S(O)₂;

W is selected from the group consisting of a bond, -C(O)-, and -S(O)₂-; and

a and b are independently integers from 1 to 6 with the proviso that a + b is \leq 7; or a pharmaceutically acceptable salt thereof.

11. (currently amended) The compound or salt of ~~claim 9 or~~ claim 10 wherein m is 0.

12. (currently amended) The compound or salt of ~~any one of claims 43 through 8~~ wherein n is 0.

13-14 (canceled)

15. (currently amended) The compound or salt of ~~any one of claims 2, 4, 5, 7, 8, 10, 11 as dependent on claim 10, or 12 as dependent on any one of claims 4, 5, 7, or 8~~ wherein R₂ is hydrogen, alkyl, hydroxyalkylenyl, or alkoxyalkylenyl.

16. (original) The compound or salt of claim 15 wherein R₂ is hydrogen, methyl, ethyl, propyl, butyl, 2-hydroxyethyl, hydroxymethyl, 2-methoxyethyl, or ethoxymethyl.

17. (canceled)

18. (currently amended) The compound or salt of ~~any one of claims 21 through 17~~ wherein Z is -S(O)₂-.

19. (currently amended) The compound or salt of ~~any one of~~ claims ~~21 through 17~~ wherein Z is -S(O)-.

20. (currently amended) The compound or salt of ~~any one of~~ claims ~~21 through 17~~ wherein Z is -S-.

21. (currently amended) The compound or salt of ~~any one of~~ claims ~~21 through 20~~ wherein R₁ is linear or branched C₁₋₄ alkyl, aryl, or 5 to 10 membered heteroaryl containing one or two heteroatoms, wherein the alkyl, aryl, or heteroaryl group may be unsubstituted or substituted with one or more substituents.

22. (currently amended) The compound or salt of claim 21 wherein R₁ is methyl, ethyl, 1-propyl, 2-propyl, 2-methylpropyl, 2-hydroxy-2-methylpropyl, phenyl, -4-chlorophenyl, or 4-fluorophenyl.

23. (currently amended) The compound or salt of ~~any one of~~ claims ~~21 through 22~~ wherein X₁₋₁ and X₁₋₂ are independently selected from C₂₋₇ alkylene groups.

24. (original) The compound or salt of claim 23 wherein X₁₋₁ is -(CH₂)₂₋₄-, -CH₂-C(CH₃)₂-, or -CH₂-cyclic(CH₂)₃₋₆-.

25. (currently amended) The compound or salt of ~~claim 23 or~~ claim 24 wherein X₁₋₂ is -(CH₂)₂- or -(CH₂)₃-.

26. (currently amended) A pharmaceutical composition comprising a therapeutically effective amount of a compound or salt of ~~any one of~~ claims ~~21 through 25~~ in combination with a pharmaceutically acceptable carrier.

27. (currently amended) A method of inducing cytokine biosynthesis in an animal comprising administering an effective amount of a compound or salt of ~~any one of~~ claims ~~24 through 25~~ to the animal.

28. (currently amended) A method of treating a viral disease in an animal in need thereof comprising administering a therapeutically effective amount of a compound or salt of ~~any one of~~ claims ~~21 through 25~~ to the animal.

29. (currently amended) A method of treating a neoplastic disease in an animal in need thereof comprising administering a therapeutically effective amount of a compound or salt of ~~any one of~~ claims ~~21 through 25~~ to the animal.

30-40 (canceled)

41. (new) The compound or salt of claim 4 wherein R₂ is hydrogen, alkyl, hydroxyalkylenyl, or alkoxyalkylenyl.

42. (new) The compound or salt of claim 41 wherein R₂ is hydrogen, methyl, ethyl, propyl, butyl, 2-hydroxyethyl, hydroxymethyl, 2-methoxyethyl, or ethoxymethyl.

43. (new) The compound or salt of claim 4 wherein Z is -S(O)₂-.

44. (new) The compound or salt of claim 4 wherein R₁ is linear or branched C₁₋₄ alkyl, aryl, or 5 to 10 membered heteroaryl containing one or two heteroatoms, wherein the alkyl, aryl, or heteroaryl group may be unsubstituted or substituted with one or more substituents.

45. (new) The compound or salt of claim 44 wherein R₁ is methyl, ethyl, 1-propyl, 2-propyl, 2-methylpropyl, 2-hydroxy-2-methylpropyl, phenyl, 4-chlorophenyl, or 4-fluorophenyl.

46. (new) The compound or salt of claim 4 wherein X₁₋₁ and X₁₋₂ are independently selected from C₂₋₇ alkylene groups.

47. (new) The compound or salt of claim 46 wherein X₁₋₁ is -(CH₂)₂₋₄-, -CH₂-C(CH₃)₂-, or -CH₂-cyclic(CH₂)₃₋₆-.

48. (new) The compound or salt of claim 47 wherein X_{1-2} is $-(CH_2)_2-$ or $-(CH_2)_3-$.

49. (new) The compound or salt of claim 7 wherein n is 0.

50. (new) The compound or salt of claim 7 wherein R_2 is hydrogen, alkyl, hydroxyalkylenyl, or alkoxyalkylenyl.

51. (new) The compound or salt of claim 50 wherein R_2 is hydrogen, methyl, ethyl, propyl, butyl, 2-hydroxyethyl, hydroxymethyl, 2-methoxyethyl, or ethoxymethyl.

52. (new) The compound or salt of claim 7 wherein Z is $-S(O)_2-$.

53. (new) The compound or salt of claim 7 wherein R_1 is linear or branched C_{1-4} alkyl, aryl, or 5 to 10 membered heteroaryl containing one or two heteroatoms, wherein the alkyl, aryl, or heteroaryl group may be unsubstituted or substituted with one or more substituents.

54. (new) The compound or salt of claim 53 wherein R_1 is methyl, ethyl, 1-propyl, 2-propyl, 2-methylpropyl, 2-hydroxy-2-methylpropyl, phenyl, 4-chlorophenyl, or 4-fluorophenyl.

55. (new) The compound or salt of claim 7 wherein X_{1-1} and X_{1-2} are independently selected from C_{2-7} alkylene groups.

56. (new) The compound or salt of claim 55 wherein X_{1-1} is $-(CH_2)_{2-4}-$, $-CH_2-C(CH_3)_2-$, or $-CH_2\text{-cyclic}(CH_2)_{3-6}-$.

57. (new) The compound or salt of claim 56 wherein X_{1-2} is $-(CH_2)_2-$ or $-(CH_2)_3-$.

58. (new) The compound or salt of claim 10 wherein R_2 is hydrogen, alkyl, hydroxyalkylenyl, or alkoxyalkylenyl.

59. (new) The compound or salt of claim 58 wherein R₂ is hydrogen, methyl, ethyl, propyl, butyl, 2-hydroxyethyl, hydroxymethyl, 2-methoxyethyl, or ethoxymethyl.

60. (new) The compound or salt of claim 10 wherein Z is -S(O)₂-.

61. (new) The compound or salt of claim 10 wherein R₁ is linear or branched C₁₋₄ alkyl, aryl, or 5 to 10 membered heteroaryl containing one or two heteroatoms, wherein the alkyl, aryl, or heteroaryl group may be unsubstituted or substituted with one or more substituents.

62. (new) The compound or salt of claim 61 wherein R₁ is methyl, ethyl, 1-propyl, 2-propyl, 2-methylpropyl, 2-hydroxy-2-methylpropyl, phenyl, 4-chlorophenyl, or 4-fluorophenyl.

63. (new) The compound or salt of claim 10 wherein X₁₋₁ and X₁₋₂ are independently selected from C₂₋₇ alkylene groups.

64. (new) The compound or salt of claim 63 wherein X₁₋₁ is -(CH₂)₂₋₄-, -CH₂-C(CH₃)₂-, or -CH₂-cyclic(CH₂)₃₋₆-.

65. (new) The compound or salt of claim 64 wherein X₁₋₂ is -(CH₂)₂- or -(CH₂)₃-.

66. (new) A pharmaceutical composition comprising a therapeutically effective amount of a compound or salt of claim 4 in combination with a pharmaceutically acceptable carrier.

67. (new) A method of inducing cytokine biosynthesis in an animal comprising administering an effective amount of a compound or salt of claim 4 to the animal.

68. (new) A pharmaceutical composition comprising a therapeutically effective amount of a compound or salt of claim 7 in combination with a pharmaceutically acceptable carrier.

69. (new) A method of inducing cytokine biosynthesis in an animal comprising administering an effective amount of a compound or salt of claim 7 to the animal.

70. (new) A pharmaceutical composition comprising a therapeutically effective amount of a compound or salt of claim 10 in combination with a pharmaceutically acceptable carrier.

71. (new) A method of inducing cytokine biosynthesis in an animal comprising administering an effective amount of a compound or salt of claim 10 to the animal.